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Ref: National Infrastructure Commission: Priorities for national infrastructure

12 January 2018

Dear colleagues

Please find below a submission of evidence on behalf of the Association for Project Management (APM) in response to your recent consultation on the above.

If any further information is required, or if we could be of further assistance, please do not hesitate to contact me.

Yours sincerely

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National Infrastructure Commission report and consultation: Priorities for national infrastructure

Response by Association for Project Management

The Association for Project Management (APM) is a registered charity with over 23,000 individual and 570 corporate members making it the largest professional body its kind in Europe. As the Chartered body for the profession, APM is committed to developing and promoting project and programme management through a wide range of activities including membership, qualifications, events and enhancing standards and knowledge in the profession.

APM's vision is ambitious, challenging and radical. We recognise that to deliver it we need to inspire everyone to create *"a world in which all projects succeed with project management as a life skill for all."* APM recognise the importance of delivering successful infrastructure projects to generate major economic and social benefits for the UK both now and into the future.

This submission builds on previous APM submissions of evidence to the NIC during 2016 - 2017 including the National Infrastructure Commission Strategy and the National Infrastructure Assessment consultation.

We have chosen to respond to specific questions where we believe we are able to offer some valuable insights.

1) How does the UK maximise the opportunities for its infrastructure, and mitigate the risks, from Brexit?

One method to maximise opportunities and mitigate risks would be to adopt a whole system/whole portfolio view (top-down). This will mean that interventions are only made where they are needed to enable the whole system and whole portfolio to achieve the required outcomes at that level - where otherwise market forces might drive a 'solution' that is not in the national interest or is not coherent when viewed across sectors/projects. This could aid in cutting out duplication, focusing limited investment and resources on the most beneficial projects and ensuring all projects are correctly ordered and prioritised so they form a coherent whole.

Whatever your view of Brexit there is no doubting it represents a major –perhaps the major set of projects in post war Britain – and one in which some of the crucial ingredients for traditional project inception remain unclear. Three of the crucial [Conditions for project success¹](#) are: competent project teams; effective governance; and clear goals and objectives. Many commentators believe that it is inevitable that project and programme management skills will be in high demand whatever happens. Highly qualified project professionals will be an essential resource across the civil service and private sector over the next few years as the UK attempts to make Brexit succeed. Given the likely increase in demand, APM's new Chartered status could not be more timely for project managers looking to show their expertise and raise their profile in the new environment.

¹ *Conditions for Project success* (APM, 2015)



APM's study on Conditions for Project Success highlighted 12 success factors that create a successful project environment. Many organisations have what is required to generate a successful project environment yet why do so many project fail? There are many reasons for this, including: the 'knowing and doing gap' – the gap between theory and practice and what can be done to bridge this, talent, learning and sharing knowledge, setting up for success – the need to ensure a project is setup correctly from the outset particularly around initiation and at the 'front end of projects' whose importance is highlighted by the research of Professor Peter Morris (UCL) and, finally, handover and transitions which is referred to in more depth later in this submission.

APM believes that skills are crucial to the successful implementation of a whole range of major infrastructure challenges over the next few years. This includes a proper overview of the need for 1) the current skills capability and 2) future skills required for both specific projects and the national infrastructure as a whole. This is made all the more pressing given the current dependency of major projects, particularly in the South east, on non-UK labour at all skills levels. Hence our call for a proper skills audit (in our 2017 Skills Manifesto) to ensure this process is managed for the immediate withdrawal phase but appropriate planning is made for the skill sets and capacity for the longer term.

No matter the outcome of Brexit a huge number of project professionals with the right skills and flexibility will be required to be ready and capable of managing difficult and complex change processes.

2) How might an expert national infrastructure design panel best add value and support good design in UK infrastructure? What other measures could support these aims?

There are a number of ways an expert advisory panel could aid design and infrastructure delivery. These might include ensuring that a range of stakeholders are incorporated both at the front end of infrastructure planning and design, those involved in implementation and delivery such as project professionals, end users and academics who can draw upon the latest theory and practice both from infrastructure and beyond.

Other measures might include a focus on innovation or formal innovation programmes. For example, Crossrail became the first megaproject within UK infrastructure when it introduced Innovate18 which was developed in collaboration with Imperial College London.

The lessons learnt from Crossrail have been incorporated into the construction sector deal for productivity. The programme put in place specific organisational arrangements to encourage, fund and implement innovations within each of the projects that made up Crossrail. Evidence from this work has shown that greater collaboration has a direct impact on performance and innovation. Perhaps the four themes used to guide idea generation here could be applied to other national projects these included – health and safety, delivering efficiencies, digital-physical integration and sustainable solutions. The formal innovation programme is part of the wider Crossrail learning legacy which again could be adopted to all major UK infrastructure projects whereby lessons learnt can be passed to improve future design.

In addition to this many leading infrastructure organisations apply a series of 'innovation bursts' which comprise of short meetings that allow a focussed sharing of innovation ideas and activities that have been collated over say a five year period. Procter & Gamble is a good example of this whereby an innovation



burst approach led to a five year-year global programme of value-driven suitability improvements. These benefits were significant and ensured that capital was spent on improvements driven by cost and value.

Digital transformation is increasingly becoming crucial to the delivery of smart infrastructure. We endorse the findings of the recent NIC report on [Data for the Public good](#)² and the recommendations for: 1) collecting the right data, 2) setting data standards and 3) sharing the data securely. The development of the concept of a 'digital twin' model could enhance infrastructure development and productivity.

3) How can the set of proposed metrics for infrastructure performance (set out in Annex A) be improved?

Annex A covers many of the main metrics required to gauge infrastructure performance including cost, quality, environmental considerations and user experience. However, it doesn't really consider future proofing for example making lifecycle assessments of the cost of operating assets by anticipating changes in use or demand therefore creating flexibility and the ability to add capacity if necessary. Also greater consideration should be given to handover assessment and benefits realisation.

4) Cost-benefit analysis too often focuses on producing too much detail about too few alternatives. What sort of tools would best ensure the full range of options are identified to inform the selection of future projects?

There are alternatives to traditional cost-benefit analysis techniques including convention theory which a recent APM research funded study on the [Importance of conventions](#)³ sought to explore. Please see response to question 28 for a more in-depth response.

One conclusion to draw would be better use of qualitative research to support project and programme evaluation. What is clear is that project evaluation as a whole remains an under-researched area, and many public and third-sector projects remain under-/unevaluated. Even with sizeable infrastructure programmes there is often nobody left after project closure to evaluate the long-term benefits.

Sometimes this is in due to the concept of 'talent warfare' whereby senior members of the project or programme have already moved across to new roles or projects creating a knowledge vacuum. This area will provide countless opportunities for future research, especially how frameworks such as SROI work in practice, and how we might yet overcome the challenges the Economics of Convention poses. Building on this, utilising learning legacies should be encouraged as a means of sharing knowledge and lessons learned from some of the UK's most high profile projects as has been done with the 2012 Olympic Games and Crossrail more recently.

All the above can help future proof infrastructure planning.

8) How can the risks of 'system accidents' be mitigated when deploying smart infrastructure?

The risks could be mitigated by: adopting standards, training of users receiving smart infrastructure, identifying good practice, whole life costing and risk management, effective knowledge management and

² *Data for the Public Good* (National Infrastructure Commission, 2017)

³



the sharing of lessons learnt and the analysis of data arising from smart infrastructure to monitor and evaluate their effectiveness through analytics.

Another area for consideration would be to focus on improving the transition from project delivery into business as usual –known as ‘project handover’. This handover of projects is an often neglected area and should be important for anyone involved in commissioning, delivering or receiving the outputs of projects – infrastructure projects in particular. A recent APM research study [How can we handover projects better?](#)⁴ identified 12 recommendations to improve project handover focused on commercial or contractual issues, processes, data and knowledge transfer and people drawn from a wide range of participating organisations. An overview of these can be found in figure 1 below.

Figure 1: 12 factors for the successful handover of projects



9) What strategic plans for transport, housing and the urban environment are needed? How can they be developed to reflect the specific needs of different city regions?

⁴ How can we handover projects better? (APM, 2017)



There is the potential for the strategic and economic plans of Local Enterprise Partnerships (LEPs), Metro Mayors and other bodies who work with local public and private organisations and businesses to develop the blueprints for meeting local the demands for transport, housing and the urban environment. Much of this work is already being conducted by LEPs for example GFirst, Gloucestershire's LEP, are currently working towards 2022 targets for jobs, skills, housing and transport in their [Strategic Economic Plan](#)⁵. One way of improving this would be better coordination nationally of what is happening across the UK to identify lessons learnt and opportunities whilst also providing the support and assistance required to those at a more local level.

Transport for the North is a good example of this whereby their work integrates transport alongside productivity, skills and wider economic growth to develop plans with wider societal and economic connectivity rather than specific sectoral objectives.

Another good example is the Northern Forest which seeks to use land based around the M62 corridor to generate environmental, ecological and economic benefits worth up to £2 billion to the UK economy (Source: Woodland Trust).

12) What mechanisms are needed to deliver infrastructure on time to facilitate the provision of good quality new housing?

The importance of project management in designing and delivering infrastructure should not be underestimated. This includes the capability of project professionals who are equipped with the knowledge and skills alongside sufficient numbers of professionals to ensure effective project delivery on infrastructure projects. The attainment of Chartered status by APM in 2017 and the opening of the Chartered Register in spring 2018 should go some way in supporting this objective. In addition, an APM research report, [Conditions for project success](#)⁶, also helps to identify the core factors which lead to the successful delivery of projects, programmes and portfolios.

In addition, open innovation or open source projects should also be explored as an alternative to traditional mechanisms in delivering good quality housing. A good example of such an approach is WikiHouse whereby architects, designers, engineers, manufactures and builders etc. came together develop the best, simplest and sustainable building technologies. This is partly done through an online platform which allows users to download and create jigsaw like pieces from building materials to the extent that the frame of a WikiHouse can be assembled within one day without formal training at a cost of less than £50,000. WikiHouse is an example of how knowledge can be digitised, shifting expertise from 'craft' to 'commons'.

28) How could a comprehensive analysis of the costs and benefits of private and public financing models for publicly funded infrastructure be undertaken? Where might there be new opportunities for privately financed models to improve delivery?

⁵ *Strategic Economic Plan for Gloucestershire* (GFirst, 2014)

⁶ *Conditions for Project Success* (APM, 2015)



A recent APM research funded study *explored the various methods of social cost benefit analysis and offered²* a potential alternative model worth considering. The research project comprised of a critical evaluation of current methods used by project planners and evaluators in the public and third sectors to quantify social benefits and costs. The study sought to evaluate current methods to see if it is possible to develop alternative quantification models/frameworks for quantifying these costs and benefits, thus broadening the choice of available quantification frameworks to project management professionals.

L'économie des conventions or Economics of Convention is an interpretivist research paradigm, which entails certain epistemological and ontological assumptions which may provide an alternative approach to analysing costs and benefits of public and third sector projects. It can be argued that the Economics of Convention has a number of strengths. First, it is able to offer an analytical framework for the underlying behaviour of individuals, and thus the behaviour of institutions, social and political groups. This was found to be useful when trying to explain how and why policymakers form their policies and evaluative constructs. Second, it offers a greater depth of explanation than positivist attempts at economic analysis would be able to offer. While a positivist analysis would merely observe and count what it claims to be 'social objects', convention theory asks how social statistics are constructed, including the social expectations and moral values that become intertwined with the definitions used, and are used to encourage conformity towards what could be called conventional behaviour.

Using the French L'économie des conventions (Economics of Conventions) School, the research argues that traditional economic evaluations should not claim objectivity. Such claims are not just unrealistic, but impossible. What is clear from the study is that project evaluation as a whole remains an under-researched area, and many public and third-sector projects remain under-/un-evaluated. Far too often, nobody is left after project closure to evaluate the long-term benefits of public and third-sector projects. This area will provide countless opportunities for future research, especially how frameworks such as SROI work in practice, and how we might yet overcome the challenges The Economics of Conventions poses.

For further information, please contact

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⁷ *The importance of conventions: A critical evaluation of current practice in social cost benefit analysis* (APM, 2017)

